

ABSTRACT OF THE DISCLOSURE

It is an object to provide a power semiconductor device having a circuit pattern and a lower pattern made of an Al alloy for cost reduction and enabling reduction in heat resistance and improvement in resistance of a soldering layer to heat cycle. A substrate of semiconductor elements is mounted on a metal base plate made of a Cu alloy. The substrate of semiconductor elements includes an insulating substrate made of ceramics or the like. The circuit pattern and the lower pattern both made of an Al alloy are formed on an upper surface and a lower surface of the insulating substrate. The lower pattern is provided on an entire surface of the insulating substrate and joined onto the metal base plate through the soldering layer. Thicknesses of the metal base plate and the insulating substrate are respectively set to be 3.5 to 5.5 mm and 0.5 to 1 mm, for example. A thickness of the circuit pattern is set to be 0.4 to 0.6 mm and thicknesses of the lower pattern and the soldering layer are respectively set to be 0.2 mm or less and 100 to 300 μ m.